

Experimental test of Kubo relation in a non-linear quantum conductor driven out of equilibrium

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We demonstrate a protocol giving access to both non-symmetrized emission and absorption current noises of a non-linear quantum conductor from measuring the power it exchanges with its surrounding circuit. Combined with a linear response measurement, we test experimentally Kubo relation equating the difference between the absorption and emission current noises to the dissipative part of the conductor's admittance. Finally we argue that, within a quantum description of the current source detection scheme used in the experiment, Kubo relation should be understood as a quantum theorem for Joule effect.